Docket No.: 013436.0235PTUS
(Bortolini 6-7-1)
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Edward J. Bortolini et al.

Application No.: 09/766,736 Confirmation No.: 1298

Filed: January 22, 2001 Art Unit: 2623

For: DISTRIBUTED BROADBAND CABLE MODEM TERMINATION SYSTEM Examiner: U. Raman

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Commissioner for Patents
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANT'S REPLY BRIEF

In response to the Examiner's Answer dated 2 July 2007, Appellant presents further arguments to address issues raised by the Examiner in this paper.

In reviewing the Examiner's Answer, it appears that the difficulty with this prosecution is not one of the content of the cited prior art, but one of language confusion. Applicant has disclosed a well-known prior art cable modem system in Figure 2 of the present application, wherein the cable modem is a bidirectional device and is located at only one level of the network, which is proximate to the "second side" of the network. This is the cited prior art. In order to address the terminology issues contained herein, Figure 2 is reproduced herein with the terminology in question being overlaid on the Figure. In particular, the two "sides" of the network are labeled in order illustrate the physical structure of the prior art network in terms of Applicant's claim language.

This terminology corresponds to the language used in the art to describe a network, which extends from a first end which serves master head end apparatus to a second end

which is connected to the nodes which serve end user devices. Applicant refers to the present specification, Page 3, lines 7-12 where this is noted:

> Existing broadband cable networks comprise a multi-layer network which are used to distribute program materials, such as video, from program sources that are connected to a head end, through the various layers of the multi-layer network to the end user locations. A typical multi-layer network comprises a multiplicity of layers (typically two) interposed between the head-end and the nodes that serve a plurality of end user locations.

Applicant's claimed invention comprises two elements: a downstream broadband cable modem component means, located at a first level of said hierarchical network, which is proximate to said second side of said network, and an upstream broadband cable modem component means, located at a second level of said hierarchical network which is proximate to said first side of said network. Independent claim 1 in its entirety reads as follows and includes the language suggested by the Examiner in a telephonic interview dated 29 March 2006:

1. (Previously presented) A broadband cable modem termination system for managing data transmissions through a broadband network that interconnects a plurality of end user locations that are connected to a first side of said network and a head-end via a cable modem that is connected on a second side of said network, said broadband network comprising a hierarchical network having at least two levels, said broadband cable modem termination system comprising:

downstream broadband cable modem component means, located at a first level of said hierarchical network, which is proximate to said second side of said network, comprising:

means for exclusively converting data that is received in digital base-band IP format from a source of program material located at said head-end, to data in a radio frequency based format for transmission to selected ones of said plurality of end user locations,

means for transmitting said data in said radio frequency based format exclusively through said network to selected ones of said plurality of end user locations;

upstream broadband cable modem component means, located at a second level of said hierarchical network which is proximate to said first side of said network and independent of said downstream broadband cable modem component means, comprising:

means for exclusively converting data that is received in a radio frequency based format from selected ones of said plurality of end user locations, to data in digital base-band IP format for transmission to said head-end,

means for transmitting said data in digital base-band IP format exclusively through said network to said head-end; and

wherein said first level and said second level are different levels in said hierarchical network and said means for exclusively converting data from digital base-band IP format to data in a radio frequency based format is at a different location from said means for exclusively converting data from a radio frequency based format to data in digital base-band IP format.

The Examiner's Answer addresses Applicant's independent claim 1 on pages 3-6 thereof. In order to minimize the length of this Reply Brief, only the pertinent sections of this argument are noted. In particular, the Examiner accurately notes the basic network architecture on page 3, lines 15-19 as follows:

> … broadband network that interconnects a plurality of end user locations (see figure 2, end user units served by passive fiber nodes) that are connected to a first side (i.e. a portion of figure 2, that is on the right side of the dotted line) of the said network, and a head end (111) via a cable modem that is connected on a second side (portion of figure 2, that is on the left side of the dotted line) of the network…

The Examiner notes the location of the CMTS 107 shown in figure 2 in a manner that is inconsistent with this terminology on page 4, lines 11-14 (emphasis added):

> …. Accordingly CMTS 107 (a broadband cable modem) comprises a downstream component means, that is located at a first level (passive fiber node 143) of the hierarchical network, that is proximate to the **second** side of the network, …

The Examiner then further misapplies this terminology on page 5, lines 14-17 in describing CMTS 108 which is located at an identical position in the network as CMTS 107:

> …. Accordingly CMTS 108 (a broadband cable modem) comprises an upstream component means, that is located at a **second** level (passive fiber node 144) of the hierarchical network, that is proximate to the **first side** of the network, …

A review of Figure 2 clearly shows that CMTS 107 and 108 are both located at the same penultimate (first) level of the network, both at the first side of the network. Therefore, CMTS cannot be at the first level, proximate the second side of the network while CMTS 108 in the same position is at a second level proximate the first side (opposite side from CMTS 107) of the network since their positions in the network are indistinguishable from each other in terms of level and proximity to the first side of the network. It is evident that the two CMTS devices are not at opposite sides of the network, but are both at the same side of the network.

The Examiner rationalizes the distinction between levels noted above as follows on page 6, lines 5-11:

> It is noted that one particular scenario of transmission of downstream data from head end 111 to CMTS 107 requires 4 hops (data travels from 111 to 121 to 122 to 131 to 143), while data transmission of upstream data from CMTS (108) to head end 111 requires 5 hops (data travels from 108 to 134 to 135 to 122 to 111). Accordingly, the first level (143) and second level (144) are different levels in a hierarchical network, because data transmission over the first level uses a different number of network hops than data transmission over the second level in the above described scenario.

However, this analysis is flawed, because "transmission of downstream data from head end 111 to CMTS 107 requires 4 hops (data travels from 111 to 121 to 122 to 131 to 143)" could equally be measured on Figure 2 as transmission of downstream data from head end 111 to CMTS 107 requires 5 hops (data travels from 111 to 121 to 122 to 132 to 131 to 143). It is not the arbitrary path through the network selected that determines level, but the distance from the relevant end point - the passive fiber nodes. Thus both CMTS 107 and CMTS 108 are at the first level of the network, at the penultimate nodes of the network. Furthermore, if there were any ambiguity in this language, the additional descriptive terminology in Applicant's independent claim 1 clarifies this language, since Applicant's claim 1 recites (emphasis added):

> … downstream broadband cable modem component means, located at a first level of said hierarchical network, **which is proximate to said second side of said network**…

and

> … upstream broadband cable modem component means, located at a second level of said hierarchical network **which is proximate to said first side of said network** ….

Thus, Applicant's claim 1 clearly differentiates the respective locations of the two components and indicates they are at respective opposite ends of the hierarchical network, regardless of the number of hops it takes to travel from a head end to a passive fiber node. In examining this claim, the Examiner cannot elect to ignore recitations contained therein that contradict the Examiner's position.

The Examiner also addresses what has been a problem from the start: how to distinguish Applicant's use of two unidirectional components, located at different levels of

the network, proximate opposite ends of the network, from the prior art of Figure 2. Applicant has been receptive to suggestions from the Examiner to clarify this distinction and, in fact in, a telephone conference on 29 March 2006, the Examiner suggested changes to the claims and these were made the subject of Applicant's response dated 31 March 2006 as follows:

> In a telephone conference dated 29 March, the Examiner discussed the present claims and the pending rejection. Applicant has amended the independent claims 1, 6 to recite the structural elements in Applicant's disclosure that distinguish Applicant's invention over the cited art. In particular, the data conversion in two different locations (levels) of the broadband network and the specific data conversions that occur exclusively at these two locations. Applicant has also added independent claims 11, 15 to recite an alternate hub-based view of the invention. Finally, dependent claims 13-14, 16-24 have been added to recite specific implementation details that are novel. Applicant believes that the amendments to independent claims 1, 6 render these claims allowable over the cited art. In addition, independent claims 11, 15 are believed allowable since these claims are analogous to independent claims 1, 6, respectively. Finally Applicant believes that dependent claims 13-14, 16-24 are allowable since these claims depend on allowable base claims.

However, it is obvious that these amendments were insufficient to achieve their intended purpose. In the Examiner's Answer, the use of the term "unidirectional" in Applicant's arguments was raised in the second paragraph of page 15 and the Examiner noted that this limitation was not recited in the claim language to distinguish over the cited art. If the Examiner believes that this term represents the necessary distinction over the prior art to render these claims allowable, Applicant would be receptive to reopening the prosecution and adding this limitation to the claims in order to resolve the present impasse. Alternatively, if the Examiner had equivalent language that would serve the same purpose, Applicant would be receptive to adding such limitations to the claims.

Summary

For the above cited reasons, Appellant requests the 35 U.S.C. §102(b) rejection of claims 1, 6, and 11 – 24 be reversed. Appellant therefore respectfully requests a Notice of Allowance in this application in light of the amendments and arguments set forth herein. The undersigned attorney requests Examiner Raman to telephone if a conversation could expedite prosecution and additional limitations were suggested to further distinguish

Applicant's invention over the cited art. Appellant authorizes the Commissioner to charge any additionally required payment of fees to deposit account #50-1848, under Order No. 013436.0235PTUS from which the undersigned is authorized to draw.

Respectfully submitted,
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